# REPORT ON THE FISHES DREDGED IN DEEP WATER NEAR THE HAWAHAN ISLANDS, WITH IDESCRIPTIONS AND FIGURES OF TWENTY-TIIREE NEW SPECIES. 

By Charles Henry (iilbert, and<br>Frank ('ramer.

The material forming the basis of this report was secured by the United States Fish Commission steamer Albutioss in December, 1891, while engaged in surveying a cable onte between California aud Honoluhn. Eight hanls were made with the beam trawl in Kaiwi Channel, Hawaiian Islands, at depths of 295 to 375 fathoms. The fishes obtained are of extreme interest, all but fire of the twenty-six species secured being undescribed. Most remarkable among them is l'elecanichthys, a new generic type of deep-sea flounder, with distensible gular ponch. Two species are inchuted which were obtained in the same locality by the use of the surface tow net.

The following is a list of dredging stations, with names of species secured at each. Additional data concerning stations can be found in the report of the Cuited States Commissioner of Fish and Fisheries. ${ }^{1}$

STATION 3467.
[Depth, 310 fathoms.]
$\begin{array}{ll}\text { Promylluntor alcocki. } & \text { Hymenocephalus antrans. } \\ \text { Diaphus urolampas. } & \text { Malthopsis mitriger. }\end{array}$ Myctopham fibulatum.

The two specimens of Chimera said to have been taken at this station ${ }^{2}$ were not included in the material submitted to us.

Statios: 3470.
[Depth, 34: fathoms.]

| Insyscopelus. macrolepidotus. | rhaliuurus ctenomelas. |
| :--- | :--- |
| Ieristedion hians. | Optonnrns atherodon. |
| Hymenoccphalus antrous. | Mrlacocephalus lovis. |

[^0]Calocephalus acipensarinus．
Ihymenorphalus antraus．

上tation 3471．

## （Deptli，：337 f：thoms．

Optomurus atherodon．
station 8．7ご．
［Depth， 295 fathoms．］

> Chnlinur＂s ctenomelas．
> Malueocephalus laris．
> Pelecanichthys crumenalis．
> Wallhopsis mitriger．

－

Jiaphus wrolampus．
Ar！！ripuue ephimpiatus．
Melunostanue ar！！！！rewm．
Peristedion hians． Cinlorkynchens ！ladius．

## The eels reported from this station＇were not submitted to us．

$$
\text { station } 3173 .
$$

［Depth， 313 fathoms．］

Sternopty．e diaphana． Calorliynehus parallclus．
Crelorephatus ucipenserimus．

Maerourus ectenes．
Macrourus propinquus．

Station 3 ！ti．
［Denth， 375 fathoms．］
Macrourtes gibber．
Trachonuress sentipellis．
optomurus atherodon．

Congermurana aquorea．
Hasyscopelus mucrolepidatas．
Celocephalus neipenscrimus．
Macrourus holocentrus．

The sternoptyre listed from this station ${ }^{2}$ did not appear in our material．
ftation 3itio．
［Depth， 351 fathoms．］

Chlorophthalmus proridens．
C＇ulocephalus acipenseriuns．
Macrourus propinquиs．
Macrourus holocentrus．

Mucrourus ！ibber．
Optomurus atherodon．
Malaroeephalus laris．
station 3176.
［Depth，29x fathoms．］
Hymenocephulus antrus．
${ }^{1}$ ）ptunurus atheroton．
Malucocephalus leris．
Pelecanichthys crumenalis．
Malthopsis mitrigu．

Chlorophthalmus proridens．
Polyipuus spimosus．
Melanostoma argyrenm．

Piristction hians．
Cetocephalus aeipenserinus．
${ }^{1}$ Report of the Commissioner．L＇，S．Fish ambllisheries，1892．p．JN．
${ }^{2}$ Loc．cit．

## Family LEPTOOEPHALID.E.

## PROMYLLANTOR ALCOCKI, new species.

(Plate NXXVI, fig. 1.)
Head $7 \frac{1}{5}$ to $7 \frac{1}{2}$ in total length (St in a young specimen), depth abont $17 \frac{1}{2}$ to $18 \frac{1}{2}$. Head and trumk much shorter than tail, abont $1 \frac{6}{7}$ to 2 in the latter. Pectorals 12 to 13 rays.

Body very slender, compressed. Head abont as deep as wide, tapering formard to a broad, flat snont, which is acute at tip. Snont 31 to $3 \frac{1}{2}$ in hearl, projecting about two-fifths to one-third of its total length beyond the tip of the lower jaw. Eye curcular, very small, abont 3 to $3 \frac{1}{2}$ in snout ( 3 in young), high up, its center abont one third of the distance from tip of suont to gill opening. Interorbital spare abont 3 in snont, a little more than eye, nearly flat. Top of heud transparent, the outlines of the brain distinctly visible, Anterior nostril with a very short tube on the mfero-lateral part of the snont, about midway between tip of snout and tip of lower jaw. Posterior nostril an oral opening above the anterior half of the eye. Pores on snont: a small pair immednately in front of premaxillary teeth; another larger under tip of snont; one over and one behind anterior nostril; two others above the edge of the upper lip; one behind angle of jaw. Gape of mouth searcely reaching front of orbit. Teeth in villiform bands in both jaws, those of lower jaw in about 4 or 5 well-defined series along the sides; a large, broad band of teeth on vomer. Tongile free. Lips thin, but somershat pendent and partly concealing the gape. Gill openings small, abont 3 in snout (smaller in youm), far apart, the distance between them about $4 \frac{2}{3}$ in hearl. Gills, 4 ; the rakers indesent, but excessively minute. Lateral line above middle of body anterionly. No scales. The low dorsal fin begins about opposite the tip of the pectoral fin; the distance between the tip of shont and the origin of the dorsal abont $5 \frac{1}{2}$ in the total length ( 6 in young). Oeciput a trifle nearer front of (lorsal than tip of snont. The very low anal fin begins immerliately behind the vent. l'ectorals very small, pointed, a little shorter than the snont.

Color (in alcohol)-Light brownish yellow. Fins bale. Abdomen greenish. Lips dark. Inside of month light. (iill eavities black. Peritonemm blackish or dusky. Type $10 \frac{1}{2}$ inches long, with well developed ova.

Nine specimens, $7 \frac{1}{2}$ to $10 \frac{1}{4}$ inches long, from station 347 -2 295 fathoms. Tige.-No. 47724 , U.S.N.M.

Head 6. $\underset{2}{1}$ to $6 \frac{4}{5}$ in total length; depth about 15 to 18 . Head and trunk much shorter than tail, about $1 \frac{3}{5}$ in the latter. Pectoral rays 14 to 15.

Body slender, compressed. Head as deep as wide, tapering forward to a flat snont. Shout 3 to $: i_{1}$ in head, slightly more than twice as long as the eye projecting two-thinds the diameter of the eye beyond the tip of the lower jaw. Eyes somewhat ellaptical, then mper margins near dorsal protile. Interorbital space abont equal to long diameter of eya. Anterion mostril a broad. short tube suthated on the antero-lateral part of the suont, and a little nearer the month than the dorsal profile; posterm nostrut a large, ellpheal opening in front of the upper third of the eye, less than its own diameter from the eye. Pores of snont arranged as follows A small par moder tip of shout just in front of anterior teeth: a large one m tiront of, a second above, and a third immedately behind, anterior nostrla; four others along the sule of the upher jaw: one behnd angle of month. A row of about 10 pores on each mandible, beginning at tip of Jower Jaw and extending beyond its posterior angle. Angle of month reaching midnle of orbit. Lips thin. Maxillary teeth close set in a broad villiform band, the outer teeth longer than the inner. Somerine teeth much larger, formmg a broad tramsverse patch madvance of masillary teeth. A very few small teeth on shaft of romer Jambibnlar teeth in a marow eardiform band anteriorly, diminishing much m sue toward angle of month. 'Tongue fice. ( iill openings far apart, then whith a hatle greater than dometer of eye, the distance between them about $\overline{5}$ in hearl. (iills $4:$ no rakers. Lateral line above middle of hody anteriorly. The dorsal fin begins slightly behind the base of the pectoral, its distance from orciput enhaling distance of latter from center of eye. Pectorals small, ponted, equal to the smont.

Color (in ulcohol).-Brown: bead and back dusky: A large, dark, operenlar spot: another small one above each are, and a dark streak on snont in front of eye. Sides of tail with coarse black specks, much more numerons in one of the sperimens than in the otler, mainly eollected into two lengthwise lines rmming parallel with the bases of the dorsal and anal: the other specimen is almost plain. Mansinal portions of dorsal and anal fins dnsky, becoming black posterionly, basal portions light. Inside of mouth a little dusky. I'eritonemm silvery, spectiled. or brownish. Alimentary ranal black.

Two specimens, $16 \frac{1}{4}$ and 182.2 inches long. from station 347.t: 375 fathoms.

Type.-No. tig96, U.S.N.M.

## Family AlCoPIDAE.

CHLOROPHTHALMUS PRORIDENS, new species.
(Plate NXNYI, lig. 2.)
Head $3{ }_{5}^{2}$ : depth $5_{6}^{5}$. 1 O. 10 to 12 : A. $10:$ I'. 14 to 15 ; V. 9 : lateral line st.
bonly as hoad as deep in front of tirst dorsal: pompressed below and behind this fin. The least depth of tail $\frac{2}{3}$ in gratest depth of trmak.

Head depressed thronghont, broad behnat and narowing loy slighty romuded lateral ontlines to a broad that, much depressed, somewhat scoop-shaped snout. Width of head behind orbit $I^{t}$ to 2 e in its length; width of snont at end of its anterior fourth $3 \frac{2}{5}$ in head. Bones of the head very thin and cavernons. Orbits enomously large, a little longer than deep, $2 \frac{2}{5}$ in head. Lnterorbital pare very nanow, about div in orbit, with a median groove bordered on each sirle hy two small ridges. Snont $:_{3}^{2}$ in head. Lower ontline of the head markedly rounded; month oblique, the maxillary abruptly expanded behind. romuded at the rud, and reaching to about the front of the pupil or a little beyond. Premaxillary very slenter, nearly as long as the maxilary. Lower jaw entirely included laterally, much less oblique than the npper jaw, its tip forming a broad dentigerous lobe wheh enters the profile and extends well beyond the premaxillaries. Symphyseal teeth form a romded patch on each side of the midde line. those of the anterior series largest, strong, conical, directed horizontally forward. . Jaws with very marow bands of small teetli; vomer with a few teeth on its prominent anterior descenting processes: a short, very narrow band on palatines. Tongue broad, flat, and thin. Nostrils far apart, close to anterior rim of orbits. Posterior edge of preoperele directed downward and a little forward, its angle broadly ronnded under posterior rim of orbit. Operele broarl, with a prominent triangular lobe reaching beyond the upper part of base of pectoral fin. Gall membranes not nnited. Psendobranchis large. Gill rakers slender, their length a little more than interorbital space, about 21 on horizontal limb of anterior arch. Scales large, thin, cyeloid, somewhat decidnous; $;$ in a transverse series between the lateral line and the origin of the dorsal fin. Interorbital space, suont, jaws, and (probably) opercles scaleless. Cheeks with exeessively thin and weak seales. Distanme from tip of suont to origin of first dorsal $2_{4}^{3}$ in length of body; distance between dorsals $3_{7}^{3}$, from tip of suont to hase of rentrals $2 \frac{2}{2}$. from base of ren trals to origin of anal $\ddot{2}_{\frac{5}{5}}$, and from rent to origin of anal $3 \frac{4}{3}$, in length of borly. Base of the dorsal fin about $-\frac{2}{5}$ in head. Adipose dorsal small, above the middle of the anal. The anal far back, its base abont 4 in head. Pectorals narrow, their base about 3 in orbit, their longest rays rearlang to or beyond vent. abont $1_{\frac{1}{2}}$ in head. Tentral rays, especially tha outer ones, strong, the longest (all injured) about $1 \frac{1}{2}$ in heart.
folor (in alcohol).-Parts where the scales have fallen off dhsky brown. Scales quite silvery. The hreast and sides above the ventral tins densely speckled with brownish black, other parts sparsely speckled. Suont, faws, and interorbital space dusky. Cheeks silvery. Anterior pant of tirst dorsal, three inner rays of ventrals. and upper part of axils, the sill cavities and posterior part of mouth cavity, black. P'eri. tonenm blark.

Type 7 inches, with well-developerl ova.
Young, $8 \frac{1}{4}$ inches long. Hearl $3 \frac{3}{3}$ : depth abont 7 : orbit. $2!3$ in head; depth of tail, $-\frac{1}{3}$ in depth of trunk. I)istance between dorsals 3 . tirom
tip of snout to base of ventrals $2 \frac{2}{2}$, from vent to origin of anal 4 . in length of body. Faint traces of dark cross bands on body and tail.

Sis specimens, ist to 7 inches long. from stations 3475 and $346 ; 3.51$ and 298 fathoms, respectively.

Type.--No. 47715, U.S.N.M.

## J゙amily MYCTOPIIDD.E.

## DIAPHUS UROLAMPUS, new species.

(1’ate XXXVIII, lig. 1.)
Head $3 \frac{2}{7}$ : depth $4_{5}^{3}$. 1). 14 to 15 ; A. 14 or 15; P. 15; V. 8: lateral line abont 29 to 3 .).
body elongate, compressed, its width $\because$ in its depth: least depthof peduncle $\mathscr{2}_{5}^{5}$ in greatest depth of trunk. Donsal and ventral outlines nearly similar, the former highest at origin of first clorsal fin. The deptla at the mape very nearly equal to the depth at origin of tirst dorsal; depth at origin of amal $1 \frac{1}{3} \mathrm{~m}$ this distance. Head stont, compressed, its dorsal outline parabolic, its greatest width over preoperele $1 \frac{1}{2}$, and its width at anterior rim of orhit $2 \frac{2}{5}$ in its greatest depth. Orbit morlerate, circolar, $3 \frac{3}{5}$ in head. Interorbital space a little convex, broad, equal to orbit. Snout steep, hlmut, short, こ in orbit, its tip nearly on a level with the renter of the eye. A slight median ridge rmming up on to the interorbital space. Month very large, somewhat oblique, curved upward a little in front of orbit: maxillary slender, but little expanded posteriorly, $1 \frac{2}{\overline{3}}$ in head, reaching abont two-fifths of its own lengtl beyond posterior rim of orbit. Teeth in marrow bands on jaws, vomer, and palatines. The sharp edges of the rami of the lower jaw nearly meeting in median ventral line. Nostrils about on a level with eenter of eye, the anterior opening abont midway between tip of snont and anterior margin of orbit, murh smaller than posterior opening. P'osterior margin of preopercle very oblique. Operele thin with a triangular lobe reaching about to base of pectoral: a little incurved above and below the lobe, scareely covering the gills. Fourteen rakers on horizontal limb of anterior arel, the longest a little less than ״2 in orhit. Bones of head thin, tlexible; a ridge behnd eye terminates in a rather strong spine at uper angle of preopercle.

Scales thin, eycloid. decidnons: 4 in a transerse series betreen lateral line and origin of first dorsal.

Ihotophores.-Mandibulars 4 pairs, very indistinct: operculars ٌ̈, the upper on level of hase of pectoral fin, the lower minute. Just behind angle of jaws; pectorals 3 , the first immediately below lateral line the serond immediately in fiont of and below base of pectoral fin, the third nearly midway between this and the foremost thoracie spot: the second of these spots forms an obtuse angle with reference to the other two thomeic $\overline{5}$, the first and second pairs far abrt, the secomd pair nearly midway between first and fifth pairs, the fonrth far up on the sides
abore the interspace between the third and fifth mairs, the fith m front of base of rentral fins; supraventral 1, immediately muder lateral line; ventrals i, the second and thind high up on the sides and nearly on a level with the base of the pectoral fin; suparanals $:$, forming nearly a rightangled triangle, with one of the spots above the hindmost rentral spot, the second immediately helow the lateral line, and the third nearly above the first anterior anal spot; anterior anals (6, equidistant, the hondmost above and behind the firth and on a line comecting the fifth anterior anal and the postero-lateral; posterolateral 1, immedately muder lateral line and above interspace between last anteror anal and first posterior anal; posterior anals f, equidistant; randals 4, 11 an obhquely directed shallow emre concave forward. The spots are divided into halves by a line of black pigment. A long gland extending the length of 6 or 7 seales, on the back of the candal perlumele, present in tive adnlts, faintly developed in one young specimen and entirely absent in one adult. No glandular photophore on snont.

The distance from tip of snont to origin of first dorsal or to base of ventrals 2! in length of body; from origin of first dorsal to seeond dorsal $2 \cdot \frac{2}{3}$, length of base of first dorsal abont $5 \frac{2}{3}$; length of base of anal $5 \frac{5}{6}$; from base of pectorals to base of ventrals 7 ; from base of ventrals to origin of amal $4 \frac{1}{2}$ to $4 \frac{士}{5}$ in length of body.

Pectoral fins inserted low, only a little above the line irom outer part of base of rentrals to angle of mouth, the fins narrow, weak, about $2 \frac{1}{t}$ in head. Ventrat rays strong, reaching to or beyond origin of anal. Longest anal rays consoderably less than 2 in head. Candal deeply forked, the longest rays at least two-thrds as long as heat.

Color (im alcohol).-Snout and anterior part of mterorbital space whitish or yellowish; an area over each orbit and the upper part of eyeball black. Cheeks silvery; opercle silvery and black, breast and abdomen dusky silvery; body blackish; seales with some metallie luster. Gill and month cavities black. Fins all black at base, then whitish. Peritoneum black.

Seven specimens, $\because \frac{1}{4}$ to $4 \frac{1}{4}$ inches long, from stations 3467 and 3472 : 310 and 295 fathoms respectively.

Type.-No. 4 Tr09, U.S.N.AI.
This species differs from other known speries of the genms in the alhsence of phosphorescent blothes on anterion part of head. This character seems to us to be of specific importance only.

DIAPHUS CHRYSORHYNCHUS, new species.
(Plate XXXVIII, fig. ©.)
Head $3 \frac{2}{5}$ to $3 \frac{2}{5}$; depth $\frac{2}{5}$ to $4 \frac{2}{3}$; 1). 17 ; A. $16 ;$ P. 11; V. S' lateral line, $: 34$ to 35.

Body elongate, compressed. its wirlth $1 \frac{2}{3}$ in its depth. Dorsal and ventral outlines similar, the depth at nape and at origin of first dorsal
equal; least depth of peduncle $\ddot{Z}_{3}^{1}$ in greatest depth of trunk. Itead heavy, compressed, it greatest width $\frac{13}{5}$, and its width in font of orbit 3 in its greatest depth. snout rery bhant and short, its anterior profile nearly vertionl. Orbit moderate, far forward, nearly circular, 3 to $3_{1}^{2}$ in lade. Interorbital space broal, donvex, its width equal to mbit. A slight median ridge rmming monto the interorbital spare. Month large, obligne, the maxilhay slender, $1 \frac{2}{5}$ in head, its posterior end extending about one third of its total length heyond the posterion rim of orbit. 'Teeth small, in narow bands on jaws and palatines; a single series on each jaw larger than the rest. A large pateh of small teeth or asperities on pterygnd. Posterior edge of preopercle directed upward and forwad. Operrle with a long, triangular pointed lobe, abont on a lew with lower edge of orbit and extending beyond the root of the pectoral, the edges ahove and below the lobe slightly emarginate, barely covering the gills. Gill rakers slender. 2 in orbit, 15 on horizontal limb of first arch. Bones of head thin and flexible. No distinct orbital or postorbital spine.

Scales thin, eycloid, not serrated, moderate, those of lateral line not enlarged; 3 in a transverse series between lateral line and orisin of dorsal. Cheeks, opercles, and interorbital space scaly.

I'hotophores. Mandibulars 3 pairs, operenlars 2 , the mper apparently double the lower minute, belind angle of jaw: pectorals :3, the upermost above opercular lobe at lower edge of second or third seale of lateral line, the second in front of midnle of base of fin, aml the third midway between this and the foremost thoraric spot, the three forming an obtuse angle at hase of pectoral tin. Thoracic .i, the first and second pairs far apart, the fourth pair almost direetly outside of the third. Supraventral 1, abont midway between lateral line and and base of ventral fin: rentrals $\overline{5}$, the first pair close together bet ween bases of rentral tins; the first three equidistant and forming a straight line direrging backward fiom midventral line; supranals 4 , one immediately moder lateral line and forming with two others a straight line extending obligucly downtard and forward, the fometh a little above and in front of the first anterior anal spot: anterior anals 5 , equidistant, the last three forming a gentle corve upward toward the posterolateral: postero-lateral 1 , moder lateral line and a very little behind the hindermost anteriom anal; posterior anals is, equidistant; camdals 4 , equidistant, in agentle curve with the roncavity formand. The spots are divided by a hack septom. Antembital gland, orange-colored: a triamgular or hart-shaped portion of it at the antero-dorsal angle of orbit: within and helow this the organ orenpies the entire area between oblot and middle line down to nostrils and betwern obtht amd maxillary hackwarl to about the vertical from the renter of the eye.
bistance from tip of shout to origin of tirst dorsal and to hase of remtrals 2.8 in length of borly, from tip of suont to origin of anal $1 \frac{3}{5}$. base of dorsal $4 \frac{1}{2}$ to 5 , hase of anal 6 . from root of peetomals to root of rentrals fil in length of body. lectorals inserted low, below the line
throngh lower rim of orbit and a little above the line from angle of mouth to root of ventrals; the fin marow, weak, its length 21 in head Sentrals broad, stronger. Candal derelly forked.

Color (in alcohol).—Body blackish brown (where the scales hatre disappeared). A spot at base of each ventral fin, and a pair of spots on interorbital space over the eye and the anterior rin of orbit, jet black. Top of head and opereles, gill and month cavities, blarkish. Seales silvery, iridescent. Peritonemm black.

Twelre specimens, 3 to $3 \frac{3}{4}$ inches long, from station 286 (surface tow net, lat. N. $21^{\circ} 15^{\prime} 49^{\prime \prime}$, long. W. $157^{\circ} 44^{\prime} 27^{\prime \prime}$ ); and from Iiao Makanni.

Type.-No. 47610 , U.S.N.M.
This specties differs from Diaphus theta and To. cugtoulis in the extreme develoment of the preocular photophore.

## MYCTOPHUM FIBULATUM, new species.

## (Plate XXXVIII, fig. 3.)

Head $3_{10}^{10}$; depth $4 \frac{1}{4}$. 1). 12: A. 19; P. 16; V. S; pores of lateral line about 27 or 28 .

Rody compressed, its width about 2 in its depth. Least depth of peduncle $2 \frac{2}{3}$ in greatest depth of body. Dorsal and rentrals ontlines nearly similar, the depth of hody a little greater at origin of first dorsal than at the nape. The peduncle somewhat expanded at base of caudal fin. Head stout, compressed. its dorsal outline parabolic, its greatest width about $1 \frac{2}{\overline{5}} \mathrm{i} 1$ its greatest depth, its width at anterior rim
 upprem nearly entering profile. Interorhital space nearly flat, hroad, $1 \frac{1}{2}$ in orbit. Snont steep, blunt, short, 2 in orbit, its tip a little above the level of the lower edge of the pupl. Month somewhat ohli, maxillary $\frac{1}{3}$ in head, reaching abont one-fourth or one fifth of its own length beyond the posterior rim of the orbit. Teeth very small, in narrow bands on the jaws and palatines. Lower jaw with a very small symphyseal knob, the shap edges of the rami meeting in a slight ridge in the median ventral line. Nostrils nearly midway between tip of snont and anterion rim of orbit, abont on a level with the center of the eye, the two openings very close together and nearly equal in size. Orintal margin separated by a groove and a ridge from the preopercle. Posterior preoperenlar margin somewhat rounded (injured), extending obliquely upward and forward. Opercle with a broad, rounded upper angle and a small pointed triangular projection just above the hase of the pectoral fin, which it reaches. bones of skull thin and flexible. About 18 gill rakers on anterior limb of first arch, slender, long. 22 in orbit. Seales large, thin, cycloid, decinhous (nemly all gone from the single specimen except those of the lateral line and those with phosphoreseent spots). interorbital space, smont, and lower jaws naked. Cheeks and preopercle with very thin scales.

Photophores.-Mandibular, 3 pairs in a curved line; operculars 2 , the mper elongated vertically and on a level with lower rim of orbit; pectorals 3 , forming an acute triangle, the uppermost high "p, on a level with the lateral lime, another at lower base of pectoral, and the thind in front of and a little below the second; thoracic $\overline{5}$, the anterior pair very close to middle line, the first 4 pairs nearly equidistant, the spots of the difth pair far apart, separated by entire width of base of rentrahs; supaweutral 1 , high un, its distance below lateral line about 3 in orbit; rentrals : 3 , nearly equidistant ; suprathals 4 , in an elegant forve, concave upwarl, the foremost a little above and behind the base of ventral fin, the hindmost immediately mader lateral line, a very little behind first anterior anal spot; anterior anals 6 , equidistant exrept the first and second, which are a little farther apart; posterior anals 4 , equidistant, the distance between first posterior anal and last anterion anal equal to distance between first and second anterior anals; posterior lateral 1 , immediately moler lateral line and over last anterior anal; candals 2, , the distance between them equal to distance between anterior candal spot and the hindermost spot of posterior anal series. Photophores not divided into halves by dark bands. A small glandular patchs on bark of pednucle immediately in front of rudimentary caudal rays. l'ostorbital part of head 2 in its whole length. Origin of tirst dorsal midway between tip of snont and anterior rudimentary candal rays. Distance between dorsals very little greater than distance between origin of anal and base of ventrals: from tip of snont to base of ventrals a little less than from tip of shont to origin of dorsal. Base of dorsal about $\because \frac{1}{4}$, base of anal $1 \frac{2}{5}$ in heat. Rays of all the fins more or less injured; peetorals narrow, slenter, very long, rearching about to origin of anal.

Color (in cleohol). -Sealeless parts of skin dusky to blackish brown. Scales silvery, stecl blue, iridescent; cheeks and opercles silvery, irideseent. Snont whitisì. Base of caudal and anal and mpper rays of pectoral blackish; ventrals, lower short rays of pectoral, and distal part of anal white; candal, first dorsal, month eavity, and anterior part of gill cavity dasky. Adipose dorsal white, black at base. Peritoneum black.

One specimen, 4 inches long, from station 3467 ; 310 fithoms.
Type.-No. 17711, C.N.N.M.

## DASYSCOPELUS PRISTILEPIS, new species.

(Plate XXXIX, fig. 1.)
Head $3 \frac{3}{3}$; depth $4 \frac{1}{3}$. D. 12 to 13 : anal 18 ; pectoral abont 17 : ventrals 8 ; lateral line (pores) 35 to 38 .

Body elongate, compressed, heavy in front, its greatest wiolth (wer the pectorals) $1 \frac{3}{2}$ in the depth. Depth at mape and at origin of first dorsal entual: thenee to the cambal the dorsal outline deseends gently and regnlarly, while the ventral ontlime asornts more rapidly
under the base of the anal than elsewhere. Least depth of pednocle about 3 in depth of trunk. Head heavy. compresserl, its greatest width abont $1 \frac{1}{2}$, its width at anterior rim of orbit 3 , in its greatest depth. Orbit large, circular, $2 \frac{1}{3}$ in head, far forward, its slorsal rim nearly entering the profile. Interorbital space loroad, nearly flat, narrower forward, its width alove center of eye abont 3 in head. Snont steep, very short, bluntly rombled, its tip neatly on a level with the lower edge of pupil. Nostrils on a level with center of eye, the posterior mach larger, close to the anterior rim of orbit. Month oblique, the gape slightly curved, maxillary 13 in head, reaching to vertical from posterior rim of orbit. Narrow bands of villiform terth on jaws; minute asperities on vomer and palatines. Posterior edge of preoperele nearly vertical. Operele thin, its posterior margin romuled witl only a slight, blunt point. Gill rakers slender, abont $2 \frac{1}{3}$ in orbit, abont 17 on horizontal limb of first arch. Srales large, firm; their edges strongly toothed, the teeth entirely absent or obsoleserent on scales of lateral line. Scales of lateral line and of the tronk below it with the rertical diameter much greater than the horizontal. Large scales on checks and opercles, 2 in a transverse series between lateral line and origin of first dorsal.
lhotophores.-Mandibulars 3 pairs, operculars 2, the lower one small, opposite angle of jaws; pectorals 3. forming an isosceles triangle with the apex directed backward, the upper spot a little above and in front of base of pectoral, the middle one immediately under base of pectoral, and the third nearly midway between this one and the first thoraic spot; thoracic 5 , nearly equidistant, the hindermost in front of external end of base of ventral fin; supravental 1, minway between ventral fin and lateral line: ventrals $t$, equidistant; supraanals 3 , in a gently curved line, with the concavity forward, nearly equidistant, the lowermost above the hindermost ventral spot, the uppermost immediately under lateral line; anterior anals $s$, equidistant, in a nearly straight line; postero-lateral 1, under lateral line and above last supranal spot; posterior anals 4 , equidistant; candals "-, close together near ventral profile. Each of the spots surrounded by a broad, black rim, but not divided into two halves by a black septimm. Distance from tip of snont to origin of dorsal $2 \frac{2}{9}$; to root of ventrals $2_{\overline{2}}^{2}$; from root of ventrals to origin of anal 6 ; base of anal 4 : base or dorsal 6 to 7 in length of body. Pectoral fin a little below the levee of center of eye, narrow, slender, the longest rays abont $\bar{J}$ in length or body. Yentral rays strong (broken off). Anterior anal rays much stronger and longer than the posterior; dorsal rays in a groove formed by elongate scales. Candal deeply forked.

Color (in alwohol).-Back and top of head blackish; sides, operete, and eheek, and under side of lower jaw silvery; all the seales with metallic luster; snont yellowish white. Gill and month cavities blackish, first dorsal and candal fins dusky, the others pale. Peritonenm blackish brown.

Two specimens, 22 inches long, from station 286 (surface tow net, lat. N. $\because 1^{\circ} 15^{\prime} 49^{\prime \prime}$, long. W. $\left.15 \pi^{\circ} 44^{\prime} 27^{\prime \prime}\right)$.

Type.-No. $4773^{7}$, E.S.N.M.

## NEOSCOPELUS MACROLEPIDOTUS, Johnson.

Nime specimens, 4 to s! inches long, from stations 3470 and 3474 ; 343 and 35.5 fathoms respectively.

Taken heretofore at Madeira (.Johnson) and kermadec Islands ( ('hal. lenger).

## F゙amily MAUlaldClD.E.

## ARGYRIPNUS, new genus.

Body much rompressed, oblong or elongate, passing gradually into the shender tail, covered with very thin, flexible, cycloid, decidnoms scales. Head longer than deep, withont spines, its bones thin and thexible. Maxillary siekfe-shaped, whth spathate supplemental bone. Eye large. Dorsal fin on middle of back, withont anterior spinoms dilatation. A large (donble) lnminons organ on preopercle and serjes of equidistant organs on bramehiostegals, isthmus, breast, abolomen, and lower part of side. A continuons series from above base of rentral fin to abont the end of the anterior third of the base of the amal tin. A closely set series of five spots above middle of anal fin, and another series of fifteen beginning above hinder end of anal and extending to the anterior rudimentary rays of the caudal.

## ARGYRIPNUS EPHIPPIATUS, new species.

## (Plate XXXIX, fig. 2.)

Head a little more than :3; depth $3 \frac{1}{3}$. 1). 10; A. $22 ; \mathrm{P}$. 15 .
Body strongly compressed, its width $2 \frac{2}{3}$ in the greatest depth. Dorsal and ventral ontlines nearly similar, but the former descends more rapidly under the dorsal fin than elsewhere amd the latter ascends a short distance very abruptly behind the base of ventral fins. Depth of body at the mape and at origin of dorsal fin equal; least depth of perlmucle 3 in greatest depth of body. Head rompressed, its greatest width (belind the orbit) 2 in its greatest depth; its dorsal and ventral protiles similar, stongly curved. Orbit large, $2 \frac{1}{4}$ in head, circular, its upper margin entering protile. Interorbital space (somewhat crushed in the single specimen) abont $52{ }_{2}^{2}$ in head. Snout broad, short, abont 2 in orbit, its tipon a level with center of eye. Month wide, very oblique anteriorly. Premaxillary slender. nearly as long as orbit, forming an angle of abont tio with axis of body, its lower cud reaching about to the rertabl from anterior margin of orbit. Maxillary reaching very nearly to postruor margin of orbit, somewhat sickle-shaped. with a rather sharp curve opposite the lower end of the premaxillary, and slightly werlapped at its posterior end by its spatulate supplemental
bone. Lower jaw entirely included laterally, and concealed by the overhanging maxillary, cmved mpard anteriorly, its tip entering profile. Teeth on premaxilary, maxillary, mandible, and palatines, few, in single series, sharp and slender; a tooth on each premaxillary about midmay of its length. the anterior tooth of the palatine series and one or more at the side of the lower jaw longer than the rest. Tongue broad, free in front. Preopercular edge nearly vertical. (iill membranes not mited. Psendobranchiae large. Gill rakers long, e21 in orbit, 15 on anterior limb of first arel. Bones very thin and flexible, the usmal deep-sea characters prominently developed. Scales large, very thin and flexible, cycloid, highly deciduons, nearly all lost in the type specimen, which is here figured as it appears, sealeless with conspicuous muscular impressions.

Phosphorescat organs.-Two on opercle below the level of the orbit, one above the other, at the two ends of a short vertical steel-bhe band from which they are separated by small black cross bands; one on cheek immediately behind tip of maxillary : 5 oblong (vertical) spotson branchiostegal membranes; a curved row of 6 nearly circular spots from base of pectoral to anterior end of isthmus; a nearly straight row of 10 , equidistant, eireular and smaller, on each side of middle line, beginning at hmeral symphysis and ruming along abdomen to tront of base of ventrals; a series of 7 oblong, vertical organs, yellowish at the lower and pearl-colored at the upper end, farther up on the side, on a level with the pertoral fin; immediately behind this. over the root of the ventral fin, begins a series of 19 organs which gradually become smaller posteriorly, and rums gently dorsalward to origin of anal, then rises a little higher with an abrupt curve and continues horizontally to about the end of the anterion third of base of anal; behind this a series of 5 small organs above the middle of anal; a series of 15 very small organs begins just in front of the end of the anal and extends along its base and close to the mid-ventral line of the candal peduncle to the root of the anterior candal rudiments; probably one in front of and one belind the orbit (injured.)

Distance from tip of suont to origin of dorsal $2 \frac{1}{4}$ in length of body, from tip of shont to root of ventrals $2 \frac{1}{7}$, to origin of anal $1 \frac{3}{4}$, length of lase of dorsal 7 , base of anal $3 \underset{8}{1}$ in length of body. Vent midway between root of ventrals and origin of anal. Pectoral fin very low, the lower end of its base nearly entering ventral profile, namow, its longest rays reaching the rent, 4 in length of body. Rays of all other fins badly injured; anterior rays of anal much stronger than the posterior. Origin ot anal a little in front of ead of first dorsal.

Color (in flcohol).-Siont and most of jaws yellowish white: posterior part of interorbital space, occipot, and back nearly to dorsal fin, mper three-fomths of eyeball, sides of head behind orbit, isthmns, breast, abdomen, areas oceupied by the phosphorescent organs, gill and month cavities, black. Small black dots at the base of the rays of the
dorsal and the ancerior rays of the anal; pectorals chasky, other fins pale: a black area on posterior part of pedmele and two hack spots at the base of the dorsal and ventral candal rays. Peritonemm black.

One specimen, $3 \frac{1}{2}$ inches long, considerably injured abont head and fins. Station 34i2; 29. fathoms.

Type.-No. 4īns, І'.S.N.M.

## Family STERNOPTYCHIDE:

POLYIPNUS SPINOSUS, Günther.
One specimen, 2 inches long. . Station 346 : 29 fathoms.

## STERNOPTYX DIAPHANA (Hermann).

Two specmens, $1 \begin{gathered}\text { i } \\ \text { inches } \\ \text { long, from station } 3473 ; 313 \text { fathoms. }\end{gathered}$
Locedity.-Atlantic and lacific. (iiinther describes two forms of this species. These two specimens belong to the form with larger eye. and the upper hart of the month conspicnomsty above the level of the lower margin of the orbit.

## MELANOSTOMA ARGYREUM, new species.

 line 2 sh to $^{2} 9(+2,3$ on tail).

Body elongate, compressed, its width at base of pectorals nearly $2 \times$ in the depth. Least depth of candal peimele $x_{1}$ in greatest depth of hooly. tlad compressend, its greatest width $1 \frac{1}{2}$ in the $\underline{g}^{2}$ eatest depth. Dorsal and rentral profiles convex, simila. Orbit large, 3 to $3 \frac{1}{3}$ in head. :nterorbital space convex, its width a little less than orbit, divided into reas ly a series of low, thin ridges; one of these, not quite as long as the shont, extends forward along the medan line of the oeciput to about the vertical from the posterior margin of the orbit: on cach side of this, a liftle behind its anterior cond, begins a curved mdge which buns forward and ontward to abont the vertical from the himer edge of the pupil and thence forward and inward to the median line bet ween the anterior mares. these symmetrical ridges forming a pear-shaped figure with its pointed end directed forward; on each side, at the greatest convexity of the above ridges, at the rertical of the posterion margin of the pupil, begins another ridge which runs straight forward and ontwand close to the anterodorsal margin of the orbit, then curves inward and forwarl inside of the nares to a point in adsance of the anterior nares and not far from the middle line.
Snont $1_{3}^{1}$ in orbit, its tip about on a level with the lower margin of the pupil. Posterior nares narow, vertical slits close in front of rim of orbit, on a level with upper rim of pupif; anterior nares small, circular; the distance letween the posterior and anterior nares $\boldsymbol{s}$ in orbit.

Jaws equal, or the lower very slightly projecting, entering the steep protile. Maxillary with a ridge along the middle, reaching to or a little beyond center of eye, $2 \frac{1}{4}$ in head, much expanded behind, the end emarginate, the lower posterior angle somewhat enlarged into at lobe. Small teeth in bands on jaws, vomer, and palatines; a large canine tooth inside of the baud of small teeth near the anterior end of each premaxillary, the tip of the lower jaw fitting between them. Each ramus of the lower jaw with 9 canine teeth in a single series; 2 very close together, at each side of the tip of the lower jaw; just ontside of these a depression in the jaw into which fits the canine of the upper jaw; behind this 7 nearly equidistant teeth, of which the most anterior is the smallest and the fourth largest or as large as those behind it. The small teeth outside of the row of canines, very few in number in the lower jaw. The canines sometimes as few as 5 in number on each side. Suborbital ring narrow. Posterior edge of preopercle nearly vertical and straight, directerl a little downward and backward and very slightly curved backward near its posterior end, producing a prominent romuded angle. Both elges closely serrated, the serrations strongest, almost in the form of small spines, at the angle. The ridge of the preopercle forms a rounded and obtuse but marked angle, its inferior edge serraterl. The opercle with two slightly diverging ridges, the lower nearly horizontal and a little more strongly developed than the upper, both ending in small spines. Gill rakers 13 on the anterior limb of first arch, the longest about 3 in eye. The lateral line is high ur , and continued onto the basal part of the caudal fin. Scales large, thin, cyeloid, very decidnons; $2 \sim$ in a transverse series between the lateral line and the origin of first dorsal fin. Interorbital space, snout, and lower jaw, and apparently the maxillary and opercles sealeless. Cheeks with large, thin, embedded scales. Second dorsal, anal, and caudal sealy on their basal parts. The origin of the first dorsal fin is over the root of the pectoral, its third spine probably the longest, at least half as long as head, the spines slender and weak. Origin of second dorsal a little in front of origin of anal, the rays heary. The first spine of the anal fin short, the second longer, $1 \frac{1}{2}$ in orbit, the soft rays thick. Caudal deeply forked, the longest rays at least half length of head. The ends of the rays of second dorsal, of anal, and caudal all injured. The upper end of root of pectoral about on a level with lower edge of pupil, the width of the base less than half orbit, the longest rays (iujured at tips) at least two-ninths of body length. Root of ventrals under root of pectorals. Spine of rentral fin long, 212 in head, its outer cdge densely serrate, the soft rays more than half as long as head. Distance from tip of snout to origin of first dorsal $\frac{2}{3}$ in length of body, from tip of snout to origin of anal a little more than $1 \frac{1}{2}$; from root of ventrals to origin of anal $3 \frac{1}{8}$, base of first dorsal $\frac{1}{2}$, base of second dorsal $8 \frac{1}{3}$, distance between dorsals 10 , base of anal 9 , in the body length.

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Color (in alcohol, scales neurly ull atf).-Back and upper part of sides light brownish, with black lines at the edges of the fallen seales. Top of head and shout dusky. Sides of head and lower three-fifths of trmk and tail silvery. First dorsal fin blackish in the distal half; the other fins a little dusky. Mouth cavity not dark; gill eavity a little dusky. Peritonemm black.

A second, smaller specimen differs from the type in having only 5 instead of ! canines in each lower jaw, its depth is a little greater, orbit larger, gill rakers a little shorter. Aside from some very slight differences in the proportions, it agrees in even minntest details with the type.

In some respects elose to Melmostoma japonicum. Steindachner and Döderlein, differing from it, among other characters, in its serrated rentral spine, larger mmber of canine teeth, greater length of seconc anal spine, in the color, the relative development of the two opercular ridges, and the absence of black color in the month cavity.

Two specimens, $3 \frac{3}{4}$ and $5 \frac{1}{2}$ inches long, from stations $34 \sqrt{2}$ and 3476 ; 295 and 298 fathoms, respectively.

Type.-No. 47i3:, U.S.N.M.

## Family SCORPEENIDA.

SCORPÆNA REMIGERA, new species.

## (1'late XL.)

Head $2 \frac{1}{4}$ to $2 \frac{1}{3}$; depth $2 \frac{5}{7}$. D. NII, 10 ; A. III, $5 ;$ P. 21 ; V. I-5; lateral line 29 (pores), the number of scales much larger, not to be exactly counted.

Body ovate, deep, strongly rompressed, its width $2 \frac{1}{5}$ in its depth. Least depth of the pedmele $4 \frac{1}{3}$ to 5 in greatest deptlı of body. Head compressed, its width $1 \frac{1}{2}$ in its greatest depth; its profile steep, nearly straight. Bones of skull thin, cavernons. Orbit moderate, nearly circular, 4 in head. Interorbital space flat, with a pair of prominent oral mucous openings, and behind these a larger median triangular depression covered by a thin membrane. Suout about equal to orbit. Spines of head small and sharp. Preorbital with three divergent spines, the first directed forward, the second forward and downward, and the third downward and backwarl. Snborbital stay rather prominent, carernous, with usually a minute spine near its posterior end. Small preocular, supracular, occipital, and paroccipital spines present. Occipital ridges thin but evident. Preopercular spines divergent 5 , the 3 upper long and sharp, second usually longest, the 2 lower small or obsolete. Opercle with two diverging ridges, the lower nearly horizontal, the upper directed upward toward the tip of the operenlar lobe, both ending in sharp spines. Month large, but little obligne, the tip of the upper jaw abont on a level with the lower rim of orbit; the maxillary $\because$ in head, reaching a little beyond pupil, its posterior end dilated, $1 \frac{2}{5}$ in
orbit. Narrow bands of villiform teeth on premaxillary and mandible; a few teeth on vomer; a rery few on anterior part of palatines. Lower jaw not projecting, its tip fitting into a small notel between premaxillaries. Small psendobranchie present. Gill lameller small; rakers far apart, rather slender, the longest about $2 \frac{1}{2}$ in orbit, 9 to 10 on the anterior limb of first arch. Scales very small, eycloid, somewhat deciduous, 10 to 11 in a transverse row between lateral hne and origin of spinous dorsal. Cheeks and opercles scaly. Interorbital space, snout, and jaws naked. Pectoral fin broad, its base 3 in depth of body; some of the upper rays branched, the lower rays not procurrent or thickened, the middle rays longest, equal to depth of body, or $2 \frac{5}{7}$ in its length, reaching to or nearly to the end of the base of the anal fin. Ventral fin under the pectoral, 4 in length of body, reaching nearly to vent, the spine long and strong, $1 \frac{1}{3}$ in the soft rays, the interior may attached for half its length by a membrane to the body wall; anal spines sleuder, graduated, the first 2 to $2 \frac{1}{2}$ in the third, the third equal or nearly equal to the ventral spine and a little shorter than the soft anal rays. Dorsal spines slender, sharp, the fourth spine longest, twice as long as the first; the eleventh very small, one-third as long as the first; the twelfth long, apparently belonging to the second dorsal fin, $1 \frac{3}{4}$ in the formth spine; the soft rays abont equal to the longest spine. Caulal fin slender, the median rays longest. Distance from tip of snout to origin of spinous dorsal $2 \frac{1}{3}$ in body: from tip of snout to root of pectorals $2 \frac{1}{5}$, and to origin of anal $1 \frac{1}{3}$, from root of ventral to origin of anal 3 , in length of body. Base of soft dorsal a little more than two in spinons dorsal; total length of soft and spinous dorsals two in length of body. Length of anal base $3 \frac{2}{3}$ to 4 in lieat. Mucoussystem lighly developed. No dermal nlaps. Vent, inst in front of anal fin.

Color redrlish. Skin everywhere densely dotted witl: minute hack specks; edge of spinous dorsal and base of soft dorsal, basal third of anal fin, the ventral fins, a ventral median band from root of ventrals to origin of anal, a spot with indefinite outlines under spinous dorsal, another under soft dorsal and a fainter one at posterior end of peduncle, the gill cavities and the posterior part of the month cavity, and the alimentary canal blackish or blackish brown. The external blackish areas are aggregations of dark dots. Peritoneum mostly silvery.

Three specimens, $3 \frac{1}{4}$ to $4 \frac{1}{4}$ inches, from station $3476 ; 298$ fathoms.
Type.-No. $472 \pm 6$, U.S.N.M.

## Family TRIGLID.E.

## PERISTEDION HIANS, new species.

(Plate XLI, figs. 1, 2.)
Head (from front of premaxillaries) $2 \frac{3}{3}$; depth $6 \frac{1}{3}$. I). VII-22; A. 22 ; $\mathrm{P}^{2} .17(2,15)$; lateral line abont 34 (pores).

Body covered with 8 series of spongy, bony plates armed with sharp,
thin, recurved spines. One pair of plates between oceiput and origin of first dorsal, their spines smaller than the following ones; 30 plates in the dorsal series, their spines nearly obsolete on the caudal pednucle. The superior lateral series with 34 plates, of which the 4 or $\overline{5}$ anterior ones are smaller, with smaller spines, and forming a decurved line from upper angle of opercle. Beginning with the fifth, the plates larger, with the largest spines on the body. Those of the suceeding plates decreasing ragularly backward. The pores of the lateral line open below and behind the spines of this series. A space behind peetorals naked; behind this, about at the begiming of the distal third of pectoral fin begins the inferior lateral series of 2.5 plates. Twenty-six plates in the rentral series, the foremost pair abont twice as long as wide, their length abont five-sevenths of depth of body. Two pairs of plates of this series in front of rent, the spines of this series mostly weak, obsolete behind.

Greatest width of head about 3 to $3 \sqrt[2]{2}$ in length of body (from tip of premaxilanies). Edge of suborbital ridge slightly denticulate withont spines or prominent lobes laterally, terminatmg behind in a long. slemder spine about as long as preorbital projection. Above this are smaller spines, varying in number from one to three. Opercle with one moderate ridge ending in a small spine and above this another nearly obsolete ridge withont spine. Preorbital projection triangular, rommed at tip, about equal to interorbital space, $3 \frac{1}{4}$ in distance from tip of projection to front of orbit. Orbit 4 in hearl. Interorbital space concave, about 5 in head, with two slight longitndinal ridges diverg ing backward to base of supraocular spine, thence downward and ontward behind orbit continnous with the slight paroceipital ridge, which ends in a small spine. Snpraocnlar spines short, mostly blont, oceipital spines larger, eompressed, rather sharp. Width of month about $2 \frac{1}{2}$ in liead; distance from tip of lower jaw to tip of premaxillaries nearly equal to interorbital space, posterior angle of lower jaw reaching beyond anterior third of orbit. The jaw armed on the onter side posteriorly with two dat, finely spimulous plates. Two similar plates behind angle of jaw. Teeth none. Seven small barbels at each side of jaw anteriorly and two on its inner side elose together and farther back. The large harbel, reaching to or beyond rent, providen on its anterior margin with a fringe of smaller barbels. The longest gill rakers about 4 in orbit. Ventrals reaching vent. Pectorals reaching beyomb origin of anal, the mper free ray nearly as long as longest pectoral ray.

Color (in ulcohol).-Head somewhat dusky; first dorsal, pectorals, and rentrals backish, paler at base; axils dusky; second dorsal with a narmw hack edge anteriorly. Peritonemm black. Length 7 inches. In a young specimen the dark coloring more marked, the distal half of the long barbel blackish, the spines sharper; edge of suborbital ridge with two small but marked triangular projections on the lines of
posterior suture of prembital and the anterior sutme of preopercle. The mpperspine of preoperele minnte. Head relatively longer: depth $5 \frac{1}{2}$.

Twelve specimens, 4 to $7 \frac{1}{2}$ inches, from stations 3470,3472 , and 3476 ; 343,295 , and 298 fathoms, respectively.

Type.-No. 47830 , U.S.N.M.

## Family MACROURIDA.

CGELORHYNCHUS PARALLELUS, Gínther.
One specimen, $4 \frac{3}{4}$ inches long, from station $3473 ; 313$ fathoms. Taken by the Chullenger off New Zealand, Kermadee Islands, and Japan.

CGELORHYNCHUS GLADIUS, new species.

(Plate NLI, fig. 3.)

Head 33: depth $9 \frac{1}{2}$; B. 6. First dorsal I, 10 to I, 11; serond dorsal quite well developed anteriorly, its longest rays nearly equal to interorbital space; anal rays delicate, slender; pectorals 18 ; ventrals 7.

Top of head evenly romded, both transversely and longitmdinally. Snont depressed, turned upward (its dorsal profile concave), very long, narrowed anteriorly, its tip prodnced as a long, strong, horny spine; length of snont, inchuding spine, more than half hearl, the spine about one-third of the entire snont. The strong infraorbital ridge begins at the base of the rostral spine and extends in a nealy straight line downward, ontward, and backward fir beyond orbit, to the angle of the preopercle. Interorbital space very nearly equal to long diameter of orbit. A pair of minnte parallel spiny ridges on oceipht, another extending backward as a contimation of the upper orbital rim to above upper angle of gill opening. Orbit large, oblong, its vertical diameter much less than the longitudinal, the latter $1 \frac{1}{4}$ in the postorbital part of head, abont $4 \frac{3}{4}$ in the whole head. Month small, entirely inferior, the maxillary reaching to abont the middle of the orbit or a dittle beyond. Distance from tip of shont to front of premaxillaries very slightly less than length of snont and a trifle less than one-half length of head. Width of month equal to longitudinal dianeter of orbit. Teeth in narrow hands on both jaws, none of them enlarged. Angle of preopercle a little prodnced, the posterior edge of meopercle nearly straight, directedupward and forward. Barbel minnte, slender, about 33.3 or 4 in the orbit. Gill membranes mated, joined to the isthmos without free fold behind. Anterior gill slit only a small pore-like opening. Borly compressed thronghont, its greatest width $1 \frac{1}{4}$ in its deptli; trunk and tail tapering uniformly. Scales of moderate size, for 7 scales in a transverse series between the lateral line and origin of first dorsal: scales from the back near first dorsal tin with abont 20 to 2.5 small spine lets in usually 7 nearly parallel series, one from batk in front of first dorsal with 11 spinelets in $\overline{5}$ series; another from ventral surface near origin of anal fin with 19 spinelets in 6 series; another fiom breast
with 10, rather irregularly arranged. All of the dorsal and lateral surfaces of head densely sealed; ventral surfice of head and shout naked. A narrowly elliptical pit on median line in front of base of vontrals, naked in the yomge, eovered with cycloid scales in adults. Second dorsal spine slender, not much prolonged beyond the rest, apparently smooth, lont with $\because$ excessively minute spinelets, and 2 still more mimute knobs, all placed considerable distances apart. Base of first dorsal nearly equal to interorbital space: distance between dorsals only onethird interorbital spare. Pectorals marrow, 2 in hearl exchsive of rostral spine. Onter ventral ray somewhat elongated into a filament, nearly as long as pectorals, not reaching origin of anal. Distance from vent to isthmus abont $1 \frac{1}{4}$ in head exclusive of rostral spine; from hase of ventrals to origin of anal. 2 in head; vent immediately in front of anal fin.

Color (in ulcohol).-Lisht brownish, head a little dnsky. A large romm, black spot immediately above and behind base of pectoral fin. A broad, fant, cross band above origin of anal fin, and four other fainter ones on the tail. A small, romm, brown spot on middle of ocriput. Veutral part of trank brownish black. Branchiostegal membranes with minute dark specks. First dorsal fin white. its anterior rays broadly black-margined. Ventrals white.

In a young specimen, $2 \frac{3}{4}$ inelies long, the rostral spine is only a small but well-marked tlexible point; hence the head relatively shorter, $3 \frac{1}{2}$ in total; scales very deciduons, their spinelets fewer, relatively longer and more slender; first dorsal spine with 3 or 4 very mimute knols or rudiments of spinclets. The spinelets on the characteristic ridges of the head sharp. Onter ventral ma much prolonged, reaching far beyoml origin of anal; the color bands more marked. bistance from rent to base of ventrals less than one-half length of head 'abomen shorter than in arlult).

Four specimens, $2 \frac{1}{2}$ to 63 inches long, from station $34 \sqrt{4}$; 29.5 fathoms. Type.-No. 47 T06, U.S.N.M.

CGELOCEPHALUS, nevv genus.
CCELOCEPHALUS ACIPENSERINUS, new species.
(1'late NLII, fig. 1.)
Head about $4 \frac{2}{5}$; depth $6 \frac{3}{4}$ to 9; B. 7. First dorsal 1, 10 to 1, 11 ; second dorsal low; anal rays well developed; pectorals, about $2=$ to 24 ; ventrals, 8 to 9. Snont much depressed, flat, thin, projecting horizontally much beyond the montli, its tip formed by a bifid, spinigerons tuberele, its length $2^{3}$ in head, its lateral edges fringed with a thick, spinigerous roll of integument, extending backwarl to and contignous with the prominent infraorbital ridge, which extends to below the posterior rim of the orbit and divides the cheek into an upper somewhat sloping and a lower nearly horizontal part. A small, bony prominence
nearly midway of this lateral ridge, in front of nostrils. Interorbital space flat between the two slightly raised orbital rims, abont equal to vertical diameter of orbit. Orbit large, the longiturlinal much greater than the vertical diameter, the former $3 \frac{1}{3}$ to $3 \frac{3}{1}$ in head.

Mouth small, wholly inferior, the distance from tip of snont to premaxillaries contained $2 \frac{3}{4}$ times in length of head; the middle of cleft of month slightly behind middle of head, the maxillary reaching about to the middle of eye; its length one-third of snont and eye. The teeth in villiform bands in both jaws, none of them enlarged. Angle of preopercle a little prolonged into a lobe, the posterior margin directed upward and forward. Barbel minute, about 5 in orbit. Gill membranes broadly mited, with a moderate free fold behind.

Body compressed, its width only about one-half its depth. Base of first dorsal oblique, its origin well elevated above general profile. Scales with 15 to 20 spinclets in about 4 to ${ }^{6}$ parallel series. Scale from interorbital base with about 40 spinelets in about 9 radiating series. Abont 7 scales in a transverse series between lateral line and origin of first dorsal. Interorbital space, upper side of snout, and infraorbital ring sealy; entire lower sirde of lead, including under sitle of snont and suborbital region, naked. Second dorsal spine a little eurved, sharply serrate, prolonged into a filament, $1 \frac{3}{4}$ in liead. Base of first dorsal less than interorbital space; distance between dorsals less than twice the base of the first dorsal. Pectorals near axis of body, slender. 2 to $2!3$ in head. Inner ventral rays reaching about to origin of anal, the outer ray prolonged into a filament nearly twice as long as the inner rays. No naked pit between bases of ventrals. Distance from vent to isthmus, 2.2 in length of head. Distance from vent to origin of anal but half its distance from base of ventrals.

Color (in alcohol).-Light brownish; snont and anterior part of head translncent whitish. Inside of mouth, gill cavities, and abdomen blackish. Fins dusky. Peritoneum brownish black dorsally, silvery ventrally.

Twenty one specimens, $4 \frac{1}{2}$ to $7 \frac{1}{4}$ inches long, from stations 3470,3471 , $3473,3474,3475$, and $3476 ; 343,337,313,375,351$, and 298 fathoms, respectively.

Type.-No. 47721, U.S.N.M.
The new genns Colocephalus differs from Coclorhynchus only in having the second dorsal spine serrate. It is of doubtful valur, especially in view of the rudimentary serie present on the second dorsal spine of Colorhynehus gladius.

MACROURUS ECTENES, new species.
(Plate NLIV, fig. 1.)
Related to M. rudis.
Head $7 \frac{1}{3}$; depth about 91. First dorsal 1, 10; second dorsal low; pectorals about 22 ; ventrals 9.

Hearl compressed, deep, its sides vertical. Snout short, $1 \frac{2}{3}$ in orbit,
scarcely extending beyond month, its anterior profile subvertical, its tip distant from premaxillaries one-half length of orbit. Tip of shont a small prominent spinigerous tubercle; a much smaller tubercle at each side of it. A median ridgo extends backward from the tubercle to about the middle of the interorbital space, and at each side a smaller ridge from the minnte lateral tubereles, above the nostril and roalesces with the superior orbital rim. A small spineless groove between the median and each of the lateral ridges. Interorbital space $1 \frac{3}{5} \mathrm{~m}$ orbit, flat or a little concave. Orbit very large, $2 \frac{2}{5}$ in hearl, elliptic $1 n$ shape, its greatest diameter oblicuely downwad and backward. Month small, maxillary reaching abont to front of pupil, onehalf length of snout and eye. Teeth in villifom bands in both jaws. Angle of preoperele not produced backward. Barpel small, suarcely balf the diameter of orbit. (iill membranes rather hroadly mited, with a narrow free fold behind. Anterior gill slit very short, abont 3 in diameter of orbit. Body compressed, its width abont one-half its depth. Tail very slender. Scales somewhat decidnons. small, very thin and thexible, with 3 or 4 slender, flexible spinclets (on a scale from side of back, near first dorsal fint. Scales on cheeks ant top of head with from 1 to 3 spines in a single series, those on opercles with abont Sor fewer spines, usnally in 3 parallel series. Spines on head shorter, suberect. About 10 or 11 scales in a transverse series between lateral line and origin of first dorsal. Interorbital space, upper side of snont, inflaorbital ring, cheeks and opereles, scaly. Second dorsal spine serrate. Base of first dorsal a little greater than interorbital space. Interspace between dorsals short, about equaling base of first dorsal. Lectorals $1 \frac{3}{5}$ in head. Onter rentral rays elongated (but broken off in the single specimen). Distance from tip of suont to origin of anal only twice the depth. Origin of anal under middle of first dorsal; its distance from base of ventrals tive-sixths diameter of eye. Distance from vent to isthmus about half length of head, vent nearer anal than rentrals.
('olor (in alcohol).-General color brownish black. Abclomen jet black. Mouth and gill ravity dusky or hlackish. Fins dusky. Peritonemm black.

One sperimen, $5 \frac{1}{4}$ inches long, from station 3 保; ; 313 fathoms.
Type.-No. 47:1s, U.S.N.M.
MACROURUS PROPINQUUS, new species.
(Plate XLII, fig. …)
Head in $_{\frac{1}{5}}$ to $\overline{5}_{3}^{3}$; depth 62. 13. 7. First dorsal 1, 13; peetorals 21 to 21): ventrals 16 .
lleal rather large. Snout short, broad, orerhanging month but lictle, its anterior profile nearly vertical, its length $1 \frac{1}{s}$ in orbit: a small median spingerons tuberele at the tip and an indistinct one at each side: the median tuberele nearly on a level with upper margin of orbit.

Interorbital space a little convex, abont $1 \frac{1}{3}$ to $1 \frac{1}{4}$ in orbit. Orbit subcircular, 3 to $3 \frac{1}{3}$ in head. Month small, transverse, with but little lateral cleft, the maxillary reaching nearly to middle of puril, about 3 in head. Teeth in both juws in villiform bands, the onter premaxillary series somewhat longer than those behind, hot only indistinctly differentiated from them. Vertical edge of propercle not sermlate. Barbel moderate, $1 \frac{1}{2}$ in orbit. Gill membranes broadly mited, almost withont free fold behind. Anterior gill slit very short, about one-laalf diameter of orbit. Width of body abont one-half its depth. The dorsal profita rises gently from tip of suout to origin of first dorsal, descending abruptly under this fin, thence nearly straight to end of tail. Ventral ontline slightly convex. Scales rather small, quite deciduons, those on upper part of side near dorsal fin with about 25 moderate spinelets arranged in 7 to 8 parallel rows. Fourteren scales in a transverse row between lateral line and origin of first dorsal. The interorbital space, npper side of snont, under sides of rami of lower jaw, infraorbital ring, cheeks, and opercles completely scaled. Second dorsal spine serrate, moderately prolonged in a filament, the length of which can not be given owing to mutilation; base of first dorsal equal to orbit, distance between dorsals three-fomrths base of first dorsal. Pectorals near axis of body $1 \frac{3}{3}$ in head, somewhat mutilated. Onter ventral ray prolonged into a filament, abont as long as liead. Distance from tip of snont to origin of anal about 4 in total. Vent about halfiway between base of ventrals and origin of anal.

Color (in alcohol).-Brownish; inside of month and gill cavities, branchiostegal membranes, and belly black; ventral fin and distal part of first dorsal fin dnsky; rentral filament and the other fins pale. Peritonem silvery, washed with dark brown.

This species differs from M. Wolocentrus in its more numerons ventral rays, smaller scales with fewer and more regularly arranged spinelets, in its dorsal profile, longer barbel, etc.

Two specimens, 6 and $7 \frac{1}{2}$ inches long, from stations 3473 aud 3475 ; 313 and 351 fathoms respectively.

Type.-No. 47it1, U.S.N.M.

## MACROURUS HOLOCENTRUS, new species.

(Plate XLIII.)
Head abont $4 \frac{2}{3}$; depth abont 6; B. 7. First dorsal I, 11 or I, 12; second dorsal low ; anal rays well developed; pectorals 20 to 21 .

Head quite firm, compressed. Snont very nearly equal to orbit. projecting axially beyond month for abont half that distance, its lower profile very oblique; in shape obtusely conical, with a median aud two smaller lateral spinous tubercles in front, the median tubercle nearly on a level with upper margin of orbit. Interorbital space nearly that, narrow, $1 \frac{1}{2}$ in orbit. Month small with lateral cleft. Premaxillaries anteriorly below level of pupil. Maxillary reaching not quite to center
of orbit, about 3 in head. Teeth in villiform bands on both jaws, the outer series of premaxillary teeth longer than the inner, but not caninelike; mandibular teeth smaller. Orbit $3_{3}^{1}$ in head, its upper margin near the profle. l'osterior edge of preoperele nearly vertical, slightly serrulate. Barbel small, scarcely more than one-third diameter of orbit. Gill membranes broadly mited with a very narrow free fold behind. Anterior gill slit very short, $2 \frac{1}{3}$ to "! $\frac{1}{5}$ in diameter of orbit. Body compressed, its width about one-half its depth. Scales of moderate size, not very deciduous, with 2.) to 50 very long slender backwardly directed spinelets arranged in about 8 to 10 somewhat irregular paralle] series; 9 to 10 scales in a transverse row between oriow of first dorsal and lateral line. Interorbital space, ipper side of snout, infraorbital ring, minder sides of lower jaw, cheeks, and opereles completely scaled. Anterior part of lateral line with a strong convex eurve reaching middle of sides slightly in advance of origin of second dorsal. Second dorsal spine serate, prolonged into a filament, its length slightly less than head. Base of first dorsal much greater than interomital space, nearly equal to orbit. Distance between dorsals equal to twice the base of first dorsal. Pectorals near axis of borly, slender, about $1 \frac{4}{5}$ in head. Outer ventral ray prolonged in a slender filament, twice as long as the other rays, which reach origin of anal. Origin of anal nearly under middle of interspace between dorsals. Vent twice as far from origin of anal as from axils of ventrals. Distance from hase of ventrals to origin of anal equal to length of smont. A small, romed, naked pit between bases of ventrals, its width about one-third diameter of pupil.

Color (in alcohol).-Light brownish, with minute dark punctulations. Lips, branchiostegal membranes, mouth and gill cavities, and lower half of sides of trunk brownish black. Abdomen bluish black. First dorsal and ventral fins blackish, the ventral filament white: basal portion of anterior anal rays, blackish; axil of pectorals black, the fins slightly dusky. Peritonem silvery, washed and dotted with brownish black.

Three specimens, $6 \frac{1}{2}$ to $7 \frac{1}{2}$ inches long, from stations 3474 and 3475 ; 375 and 351 fathoms, respectively.

Type.-No. 47734, U.S.N.M.

## MACROURUS GIBBER, new species.

(Plate MLIV, fig. :.)
Head $6 \frac{1}{3}$; depth abont $\overline{3} \frac{1}{2} ;$ B. 7. First dorsal I, 11 or I 12 ; second dorsal very low; anal rays well developed; pectorals 20 ; ventrals 12 to 13 .

Head compressed, deep, its greatest depth nearly equal to its length; cheeks vertical. Snout short, but little overhanging the month. its length a little less than diameter of orbit; its tip is a small, spiny
tuberele, on a level with the upper rim of the orbit; behind this a median ridge ruming up on the interorbital space; on each side, in line with the upper rim of the orbit, is another smaller ridge parallel with the median one, and ending anteriorly in a small, spinous tuberele. The intiaorbital ridge is nearly vertical and ends under middle of orbit. Space between tip of snout and upper jaw nearly vertical. Interorbital space flat, very nearly equal to horizontal diameter of orbit. Orbit moderate, its longest axis nearly vertical, with a slight obliquity downward and backwarl, $3 \frac{1}{5}$ to $3 \frac{2}{5}$ in head. Mouth very oblique, maxillary searcely reaching front of pupil; the tip of the premaxillaries nearly on a level with the center of the eye. Teeth in narrow villiform bands in both jaws. Angle of preoperele not produced, its posterior edge nearly straight, directed upward and backward. Barbel 1 to $1 \frac{1}{2}$ in orbit; gill membranes narrowly muted, withont distinct free fold. Length of anterior gill slit $1 \frac{1}{2}$ in orbot.

Body compressed, very deep, its greatest depth at origin of first dorsal equal to or greater than the length of the head. The dorsal profile ascends somewhat to origin of first dorsal, drops abruptly under this fin, which is therefore attacherl to the posterior slope of a prominent hump, and then runs nearly straight. The ventral profile ascends rapidly backward from origin of anal; lence the tail is abruptly narrower than trunk, but tapers uniformly to its tip. Scales, small, thin, and Hexible, decidnous; about 14 in a transverse series between lateral line and origin of dorsal. Scales fiom back, behind origin of second dorsal, with 13 to 17 small spinelets arranged in about 5 or 6 nearly parallel rows; a scale from back in front of first dorsal with about 9 spinelets in 3 rows. Top and sides of head scaly. Second dorsal spine serrate for about one-third of its length, prolonged into a filament, its whole length $1 \frac{2}{3}$ times as long as head. Base of first dorsal equal to orbit, $1 \frac{1}{2}$ in the distance between the dorsals. Pertorals slender, threefourths as long as head. Outer ventral bay prolonged into a filament which reaches much beyond origin of anal, about 2 in head. Origin of anai slightly in advance of origin of first dorsal. Distance from base of ventrals to origin of anal two-thirds of long diameter of orbit. Vent nearer origin of amal than base of ventrals.

Color (in alcohol).-Body brownish; snont light, translucent; lips, month eavity, under side of liead, and lower side of tronk black. A vertical bar of same color on cheek behind angle of month, not reaching the orbit. Lining of gill cover black, with the exception of an oblong space at base of inner branchiostegal ray, which is silvery white. Lining of clavicular portion of gill cavity dusky or whitish. Pectoral and ventral fins dusky. Peritoneum dark brownish, silvery.

Seventeen specimens, $5 \frac{1}{2}$ to $S_{2}^{1}$ inches long, from stations 3474 and 3475 ; 375 and 351 fathoms, respectively.

Type.-No. 47733 , U.S.N.M.

## HYMENOCEPHALUS ANTRÆUS, new species.

> (Plato NLSI, fig. 2.)

Head $5_{1}^{3}$ to 61 ; depth 8 to $S_{2}^{1}$; B. 6 . First dorsal 1, 9 to I, 11: pectorals 13 to 16 ; ventrals 1 .

Head large squarish, its cavities greatly developed, roofed over by very thin membrane; the bones very thin, translneent and Hexible. Sides of head vertical; suont very short, bluntly rounded, with slightly projecting median point, below wheh the protile is vertical: snont about $\because 2 n$ vertical diameter of orbit. Interorbital space that, $1 \frac{1}{2}$ in vertical diameter of orbit, $3 \frac{1}{3}$ to $3 \frac{2}{3}$ in head. Orbits and mostrils with prominent bony rims: most of head encered by a translucent integument, the shonkage of which makes the bones undnly prominent. Montl terminal, not oserpassed by snont, somewhat oblique, the lower jaw inchaded; maxillary reaching beyond hinder edge of orbit, 2 in head. Teeth small, in very narow villiform hands on both jaws. Those on sides of lower jaw sometimes in a single series. Orbit very large, its horizontal diameter $2 \frac{2}{3}$ in lhead, its rertical diameter $2 \frac{1}{2} 21$ lead. its upper edge entering the profile. Angle of preopercle romded, its posterior edge vertical. Barbel wanting or excessively minute. (iill membranes mited in front, not attached to isthmus. First gill slit nearly ergual to diameter of orbit. Body moderately compressed, its width abont twothirds of the depth. Tail very sleuder. Trunk and tail tapering ahmost uniformly from head to tip of candal. Scales very decidnons, large, very thin and flexible, eyeloid, smooth: about 5 rows between lateral line and origin of first dorsal. The scales that were still in blace were very fer, but the above deseription applies to seales studied in position on the shoulder, on the back in front of first dorsal, on upper part of side below first dorsal, on lateral line, and on belly behind the base of the rentrals. Second dorsal spine smooth. Base of first dorsal equal to interorbital space; distance botween dorsals abont equal to twice the base of first dorsal. Pectorals very narow and slender, $1 \frac{1}{3}$ in head. Base of ventrals under pectorals, rays slender, the ontermost elongated into a filament reaching much beyond origin of ans? Distance from tip of snont to origin of anal abont $3 \frac{3}{4}$ in total. Vent far back, just in front of origin of anal. loistance from vent to isthmus at least as grat as length of head.

Color (in alcohol).-Trumk dark brown: tail light, marked with darker brown: a line of dark-brown dots along axis of tail and a dark mark at the hase of each ray of amal amb second dorsal fins. Jaws, breast, amd belly to origin of amal, intense black: sides of head and trunk silvery, washed with blackish. Gular membrane translucent, with a network of brown lines; lateral portions of jsthmus, and a streak extending from them posterionly above base of ventrals. silvery, (rossed by extremely fine parallel brown lines, hardly to be distinguished withont the aid of a lens. Base of tirst dorsal dasky. fins otherwise pate. Inside of month dusky on blackish. Peritonemm
silvery or blackish silvery. The typical deep-sea characters are very marked.

Ninety-one specimens, $3 \frac{1}{4}$ to 7 inches long, from stations 3467,3470 , 3471 , and $3476 ; 310,343,337$, and 398 fathoms respectively.

Type.-No. 47735 , U.S.N.M.

TRACHONURUS SENTIPELLIS, new species.
(Plate NLV, fig. 1.)
Head abont $6 \frac{1}{5}$; depth about 8 . First dorsal I, 8 ; pectorals 16 to 17 ; ventrals 7 ; second dorsal low; anal rays well developed.

Head compressed, squarish, the sides vertical. Snout slort, obtusely conical, overhanging the month but little, without tubereles, a little shorter than orbit. Interorbital space flat, a little greater than diameter of orbit. Orbit molerate, nearly circular, $3 \frac{3}{5}$ in head. Mouth lateral, entirely below lower rim of orbit, maxillary reaching a little beyond middle of orbit. Teeth in villiform bands in both jaws; the outer series of the upper jaw slightly enlarged. Barbel small, about 23 in orbit. Gill membranes united with a broad free fold behind. Anterior gill slit short, about $2 \frac{1}{4}$ in orbit. Scales firmly embedded, but distinct, imbricated, rather small; $S$ seales in a transverse row between the lateral line and origin of first dorsal. Scales from the side above the lateral line with 10 to 11 long, strong spinelets frequently arranged in 3 radiating series; others from back behind origin of second dorsal and from side near origin of anal with abont $\&$ spinelets similarly arranged; one from far back on tail with 9 spinelets in 5 series; others from the back in front of the first dorsal with $S$ to 10 spinelets irregnlarly arranged. Spines on head and anterior part of body short and suberect; posteriorly becoming loug, very slemter, and closely appressed. Series of scales along the base of anal enlarged, each scale bearing a single oblique row of spines larger than those elsewhere on body. Posteriorly on tail and at extreme anterior end of anal these enlarged scales merge into the ordinary scales of the respective regions. Scales along base of dorsal not enlarged, some of them showing, however, a single oblique series of slightly enlarged spinelets. The whole head, except lips and gular and branchiostegal membranes, completely sealed. Second dorsal spine smooth, slender, $1 \frac{2}{3}$ in head. Base of first dorsal a little more than half as long as orbit. Distance between dorsals about twice the base of the first dorsal. Pectorals narrow, abont $2 \frac{1}{6}$ in head. Ventral rays reaching about to origin of anal, the onter ray but little prolonged. Space between base of ventrals and origin of anal naked. Vent nearer the latter. Distance between base of ventrals and origin of anal twosevenths of length of head. Origin of anal muder middle of interspace between dorsals.

Color (in alcohol).-Dark brownish, darker anteriorly. Lips, mouth, and gill cavities, liuing of esophagus and the belly, bluish black. Fins dusky, ventrals blackish. Peritoneun black.

This species is closely related to Truchonurus villosus. Giinther, but differs from that in being less slender, in its larger eye, larger month, longer barbel, number of dorsal spines and pectoral mas, and in the number, character, and arrangement of the spinelets of the seales.

Two specimens, $11 \frac{1}{2}$ inches long, from station 344 : 37.) fithoms.
Type.-Ň. 47980 , U.S.N.M.

## CHALINURA CTENOMELAS, new species.

(Plate MLV, fig.2.)
Head $5_{1}^{\frac{1}{4}}$; depth $6 \frac{2}{3}$; 3. 7. First dorsal I. 10 to I. 12: nectorals 21 ; ventrals 9 to 10.

Head cavernoms, compressed, cheeks nearly vertical; shont hoadly triamguar, tapering to a blunt point, short, pojecting very little beyond month, $1 \frac{1}{3}$ in orbit, its tip nearly at the level of the mper margin of the orbits. Interorbital space slightly convex, withont prominent ridges, $1 \frac{1}{2}$ in diameter of orbit, a slight infraorbital ridge extending from tip of snont to below posterior part of orbit. Mouth lateral, oblique, slightly overpassed by the snout, maxillary reaching nearly to vertical from hinder edge of pupil, $2 \frac{1}{3}$ in head. Premaxillary nearly as long as maxillary, heterodont, with an outer row of enlarged, widely set curved teeth, and an inner villiform band. Mandibular teeth in a very narrow band, smaller and more closely set than the onter premaxillary series. Orbit elliptical, large, 23 to 3 in head. Posterior edge of preopercle nearly vertical, a little incurved. Length of barbel 1 to $1 \frac{1}{3}$ in diameter of orbit. Gill membranes narrowly mited, joined to the isthmms with a narrow free fold behind. Length of auterior gill slit equal to interorbital width. Body murla compressed, its greatest width less than one half the depth. Base of first dorsal elevated, obliøne, its front projecting. Scales somewhat decidnons, of moterate size, with 15 to 20 sharp, slender spinelets, not in definite series, those on the scales of upper side of head and back and abdominal region mostly black. Whole snont, interorbital space, cheeks, opercles, and moder side of lower jaw scaly; 10 rows between lateral line and origin of first clorsal. Second dorsal spine somewhat elongated, with 25 or 30 small serrations. Hase of first dorsal equal to interorbital spare: distance between the first and serond dorsals twice or a little more than twice the base of the former. Distance from tip of shont to origin of anal about 4 in total length. Pectorals in axis of body a little more than half length of head. Ventral rays reaching a little beyond origin of anal, the onter rays prorluced into a short filament. Vent but little behind base of ventrals, distant from them abont one-third its distance from front of anal. Distance between vent and isthmms more than half length of head.

Color (in alcohol).-Upper one-third of trunk and tail brownish; cheeks and lower two-thirds of sides silvery; sides and tail speckled
with brownish dots. Lips, under side of head, branchiostegal membranes, gill cavities, back part of month, distal part of first dorsal, base of pectoral, and most or whole of ventral fins brownish black. Tentral part of borly from the isthmus to or beyond origin of anal bhish black; a faint dark elongate spot under the posterior part of orbit. Peritoneum bright silvery, dotted with black.

Young more slender, less deep, eye larger.
Seven specimens, $4 \frac{1}{4}$ to 8 inches long, from stations 3470 and 3472 ; 343 and 295 fathoms, respectively.

Type.-No. 47704, U.S.N.M.

## OPTONURUS ATHERODON, new species.

(Ilate XLVI, fig. 1.)
Head 5; depth $5 \frac{5}{5}$; 13. 7. First dorsal I, 10 to I, 11; anal about 130; pectorals 20 to 23 ; ventrals 10 .

Series of large, carernous pits and depressions on top of head; suprascapular region and preorbital covered with thin translucent integument. Head very cavernous, compressed. Snout broad, short, $1 \frac{1}{2}$ in orbit, its preoral portion 3 in orbit. Interorbital space flat, $1 \frac{1}{4}$ to $1 \frac{1}{2}$ in orbit. A median ridge extending from behind tip of snont over the interorbital space to about opposite the middle of the orbits, where it joins a transverse ridge. The interorbital space between this ridge and edges of the orbits covered by a thin, translucent membrane beneath which are large cavities. A pair of small, curved ridges (with their eonvex sides directed medianward) on the oceiput. Quite prominent bony rims aromd the nostrils. Mouth terminal, lateral, oblique, jaws about equal, the lower, little inchuded, maxillary reathing middle of orbit, nearly half as long as head, its posterior end much narrowed and directed rentrally. Premaxillary nearly as long as maxillary, heterodout, with an outer series of widely set canines with distinetly arrow-shaped $\mathrm{i} p \mathrm{ps}$, and an inner villiform band. Mandibular teeth small, closely set in a very narrow band, the imer series slightly enlarged. Orbit very large, $3 \frac{1}{4}$ in head, its upper edge nearly entering the profile. Preorbital narow, $\frac{2}{5}$ in orbit. Posterior edge of preopercle nearly vertical, slightly incurved. Barbel a little more than one-half lengtl of orbit. Gill membrames rather broadly mited in a free fold across the isthmus. The length of the anterior gill slit $1 \frac{1}{3}$ to $1 \frac{1}{4}$ times the interorbital width. Body compressed, its greatest width one-half its height. Scales very deciduous, of moderate size, thickly eovered with short blackish spinelets not arranged in series. Head apparently entirely sealed; 10 to 12 series between origin of dorsal and lateral line. Second dorsal spine smooth, $13 \frac{3}{4}$ in head. Base of first dorsal equal to interorbital space. Origin of first dorsal over axil of pectorals. Second dorsal low; distance of its origin from end of first dorsal nearly three times the base of the latter. Origin of anal under or slightly in
front of end of first dorsal; its distance from base of ventrals one-third to one-fourth of length of head. Pectorals in axis of body narrow, slightly more than half length of head. Onter ray of ventrals produced into a filament which reaches beyond origin of anal. Vent well forward, immediately behind base of ventrals; no maked pit between bases of ventrals. Distance between vent and isthmms more than half length of head.

Color (iu ulcohol).-Checks, opercles, and lower two-thirds of sides silvery; the sides, especially on tail, speckled with minute dark dots. Upper one-third of sides brownish, the line between the brown and the silvery of the sides sharply defined. Snout, lips, lower side of head, branchiostegal membranes, gill cavities, and posterior part of mouth cavity brownish black. A brown band fiom eye backward and downwarl across checks. A fainter band from eye along upper edge of cheeks and opercles; a third band seen through the transparent mem. brane covering the infraorbital ring; narrow posterior margin of premaxillary velum black; a small black blotell either side of vomer. Tentral side of borly from isthmus to or a little beyond origin of anal bluish black. Lectoral and ventral fins dusky. Peritonemm bright, silvery, somewhat dotted with black specks.

Thinty specimens, $\tilde{b}_{2}^{\frac{1}{2}}$ to $13 \frac{1}{2}$ inches long, from stations 3470,3471 , 3474,3475 , and $3476 ; 343,337,375,351$, and 295 fathoms, respectively.

Tigpe.-No. 47729, U.S.N.M.

## MALACOCEPHALUS LEVIS, Lowe.

Hitherto recorded only from the Atlantic, and from Andaman Sea (Alcock).

Ten specimens, the smallest 123 inches, from stations $3470.34 \%, 3475$, and $3476 ; 343,295,351$, and 298 fathoms respectively.

## Family PLEURONECTID.E.

## PELECANICHTHYS, new genus.

Eyes and color on the left side. Mouth symmetrical, of enormons extent, gape about as long as head. Mandibles extending anteriorly far beyond tip of snont, the projecting portion deenred and falciform; the rami very slender and flexible, cach rotating inward, so that the teeth of the two rami meet and interlock in the closed month, instead of being opposed to those of the mper jaw. Mandibular membranes voluminous, forming a veritable gular pouch and permitting wide divarication of the mandibnlar rami. which can be also closely appos for their entire length. The angular forms a slender process, poyn: ing beyond the mandibnlar articnlation and extending behind the posterior margin of the operele. Premaxillary, maxillary, and palatopterygoid formed of three very slender bony rods, parallel and closely juxtaposed for the greater part of their length. Branchostegals 7.

Gill rakers absent. Preoperenlar margin free. Dorsal and anal fins very long, the former commencing on the snont. Candal pednncle extremely short, a low fin-fold joining dorsal and anal with rudinentary candal rays. Candal lanceolate. Ventrals unsymmetrical, the left slightly more anteriorly placen, inserted on the ridge of the abdomen, its membrane leading to hase of first anal ray. Vent displated well to the right side of the ridge slightly in advance of front of anal, a small papilla (genital papilla?) occupying a corresponding position to the left of the ridge. Scales excessively fine. Lateral line single, conspicuous, continued on to the caudal fin; with a short, low anterior arch.

## PELECANICHTHYS CRUMENALIS, new species.

(Plate XLVII.)
Head (horizontal length) $4 \frac{1}{3}$ to $4 \frac{2}{2}$ ( $5 \frac{1}{2}$ in smallest specimen); (lepth $3 \frac{1}{2}$ to $3 \frac{3}{5}$ ( 4 in smallest); dorsal 121 ; amal 88 ; pectorals 13 or 14 ; ventrals of both sides with 6 rays; about 230 to 240 pores in the course of the lateral line.

Body slender, excessively compressed, tapering slowly aud mitormly toward tail, the two outlines very weakly arched for the greater part of their extent. Anterior ontline of head strongly decurved, the physiognomy resembling that of Glyptocephalus. Bases of dorsal and anal fins wifle, translucent, sharply marked off from rest of body, constituting together half the greatest depth of body. Abdomen very short.

Ifead very obliguely placed. the eyes closely approximated near the $\mathrm{n}_{\mathrm{i}}$ per anterior protile, the cheeks narrow, oblique, the mper limb of preopercle nearly horizontal, the lower limb nearly vertical. Mandible extemling beyond premaxillaries for over one-fomrth its length. The rami are so articulated as to permit a slight inward and outwarl rotation on their long axes, in addition to other movements. The gular membrane is large and loose, falling into folds when the jaws are closed. The entire mechanisn of the lower jaw seems adapted to seizing food between the rami, and forcing it down between and below them. Teeth in both jaws in a somewhat meven single series, those in manaible largest, smaller teeth irregularly altemating with the larger ones in both jaws. Posterior third of both jaws tonthless. Palate smooth. Anterior nostril with an overarching flap or short tulse. Posterior nostril withont tube.

Eyes elliptical, nearly even, long axis ot lower eye very oblique. Oblinue diameter of upper orbit $33^{3}$ in head: the suont short, fiveseventlis diameter of upper eye. Interobital space narmw, grooved, the width one-fifth diameter of upper eye.

- Morsal fin beginning above anterior nostril, the first few rays slightly .splaced toward the blind side. Pectorals narrow, pointed, abont $1 \frac{3}{4}$ in length of liead, that of blind side apparently shorter. Candal lanceolate in a yonng specimen (mntilated in adult), the middle rays $1 \frac{1}{4}$ in head.

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Jaws, snont and interorbital space naked; head and body elsewhere covered with minute cycloid seales. Lateral line nearly axial, its anterion arch low, above the head, the posterior downward curve abrupt, above base of pectoral; length of arch nearly equal to half depth of body.

Color (in cleohol). - Mead and body liglit brown, the outlines of the seales dusky, the wide bases of dorsal and anal fins semitranslucent. Abdomen in the adult with narow vertical stripes of blue-black, alternating with the wider muscular bands which are of the ground color. Head and anterior median portion of trunk with faint darker brown spots about one-third size of pupil. In addition to these, the median part of body is marked with abont 4.5 larger romm spots, darker than the others, but still faint and ill defined. These are nearly as large as eye, and are arranged on anterior part of trunk in 7 lengthwise series, all but 3 of which gradually disappear on tail. The larger spots are much more distinct in young specimens than in adnlts. Mouth and gill cavity white. Peritoneum black. Fins dusky.

Three specimens, 7 to 10 inches long, from stations 3472 aud 3476 ; 295 and 298 fathoms, respectively.

Type.-No. 48738 , U.S.N.M.

## Family MALTHIDA.

## MALTHOPSIS MITRIGER, new species.

(Plate XLYIII, figs. 1, …)
Branchiostegals 4; (lorsal I, 4 to 5 : anal 4; pectorals 14 ; ventrals I, $\overline{5}$; pores of lateral line behind disk 9.

The disk strongly depressed, triangular. its greatest width (exclusive of the posterior lateral projections) $1 \frac{2}{3}$ in length of body exelusive of candal, its deptlabout 4 . Botly behind disk tapering nearly uniformly. Body nearly everywhere covered with radially striated tuberenar plates. Gular region and branchiostegal membranes naked. The vent lies in the center of a naked, somewhat elliptical basin surrounded by a ringe of tuboreles. A shallow pit behind base of ventrals. Head rertical in front. The tentacular pit triangular, higher than wide, its mpper augle on a level with the upper edge of pupil. The pit is surmounted by a laree, conieal median tubercle pojecting upward and slighty forward, the length of which is abont 2 in orbit. At each side of this tubercle is another smaller one projecting upward and ontward. The elub-shaped tentarle, when extemled, not quice reaching front of upper faw. Eyes large, the orbits strongly convergent, distance between their anterior edges $-\frac{1}{2}$ in the distance between their posterior enges. Moutlo somewhat oblicue; bands of very minute teeth on jaws, romer, and palatines. Widtl! of month and diameter of orbit about equal. Gills 2 on each side, only a narow membrane on first
arch; gill rakers minute. Subopercular spine flat, long, extending laterally and armed at tip with 2 to 5 small spinelets. Pectorals about $4 \frac{1}{2}$ in length of body, the rays very close-set; rentrals about $i$ and candal 6 in length of borly. Vertical fins weak.

Color (in alcohol).-Body and all the fins pale, yellowish. Peritoneum dusky.

Length, 3 inches.
Stations 3467,3472 , and $3476 ; 310,295$, and 298 fathoms, respectively. Type.-No. 47700, U.S.N.M.


[^0]:    ${ }^{1}$ Report of 1892 , p. 58.
    ${ }^{2}$ Report of the Commissioner, I. S. Fish and Fisheries, 18:2, p. 18.

